

# INFORMATION AND EDUCATION

## A READERSHIP PREFERENCE SURVEY OF VIRGINIA WILDLIFE SUBSCRIBERS

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*Abstract:* A readership preference survey was conducted among subscribers to *Virginia Wildlife*. The survey was designed to determine the relative preference of subscribers for major types of articles and more specific articles within major types. Based on median responses, hunting articles were most preferred by subscribers, followed by fishing, wildlife management, natural history, outdoor equipment, wilderness adventure, environmental issues, history-nostalgia, wildlife arts and crafts, and boating articles. A Kruskal-Wallis 1-way analysis of variance on ranks procedure was employed to determine if there were significant differences among responses to specific-article questions within each of 8 article classifications and within a question containing rankings of preference of major topics. A significant ( $P < 0.05$ ) Kruskal-Wallis test was followed by a multiple comparisons test to determine the responses to specific-article questions which were significantly different. Approximately 78% of sample respondents expressed interest in hunting and fishing. A decision formula is presented for determining the relative frequency with which certain major categories of articles could be published to tailor a magazine's content to preferences of subscribers.

Proc. Ann. Conf. S.E. Assoc. Fish & Wildl. Agencies 32: 732-737

Many magazines, conservation or otherwise, conduct readership preference surveys. Although motives for conducting these surveys probably vary, the most frequent purpose is to determine the relative preference of subscribers for articles of differing content and orientation for the purpose of tailoring the magazine to provide an optimum presentation of articles. Wilson (1972) polled subscribers of *Georgia Fish & Game* (now *Outdoors in Georgia*) to determine, in part, the types of articles most preferred by subscribers.

Analysis of responses to readership preference surveys is useful not only for the purpose of tailoring the content of a magazine to the desires of subscribers, but may provide an indication of the extent to which readers are willing to be "informed" or "educated." We do not wish to discuss the education vs. information vs. persuasion vs. entertainment controversy surrounding the "purpose" of a state conservation magazine (Amundson 1972, Harrod 1972, Vance 1973), but do suggest that analysis of readership preference surveys can provide information concerning the potential effectiveness of various approaches for achieving an objective or a combination of objectives.

## METHODS

A 1-page, tear-out, readership preference questionnaire was included in a hunting satisfaction/readership preference articles published in the August, 1977 issue of *Virginia Wildlife* (VW) (Beattie et al. 1977). Specific questions included in the questionnaire were formulated by H. Gillam and are available from the authors. VW subscribers were requested to rank (from most to least preferred) their preference for each type of article within each of 8 major topics. The topics, or major content types, were: 1) hunting and fishing stories, 2) boating articles, 3) wilderness adventure articles, 4) articles about environmental and political issues, 5) wildlife management articles, 6) natural history articles, 7) history-nostalgia articles, and 8) wildlife arts and crafts articles. Subscribers

were requested to rank in order of preference 10 major subject areas. The subject areas included types 2 through 8 (above), hunting stories, fishing stories, and outdoor equipment stories. The subject area "hunting and fishing stories" was partitioned into 2 items. The final question of the survey requested subscribers to check each of 15 types of personal outdoor interests which were applicable to them. Questionnaires were self-addressed but not postage-paid and were self-prepared by respondents for mailing by folding the questionnaire and returning it to the primary author's university address.

Follow-up postcards were mailed by the Virginia Commission of Game and Inland Fisheries to a random sample of 300 VW subscribers during the week following publication of the article. Questionnaires received from follow-up individuals were identified by individuals writing "late respondent" on the questionnaire. A misunderstanding between the Commission and the primary author concerning the day on which follow-up postcards should be mailed resulted in the postcards being mailed too early to be useful for analysis of potential survey nonresponse effects.

Responses to items of the survey were punched on IBM cards and frequency and central tendency (median) calculations performed using subprogram CONDESCRIP-TIVE of the Statistical Package for the Social Sciences (SPSS, Nie et al. 1975). The distribution of ranks assigned to response items within each of the first 9 questions was tested for locational difference using the Kruskal-Wallis 1-way analysis of variance on ranks procedure of program NPAR1WAY of the Statistical Analysis System (SAS, Helwig 1977). Following a significant ( $P < 0.05$ ) Kruskal-Wallis test, Miller's (1966) equal-sample size, large sample approximation, distribution-free, multiple comparisons test based on Kruskal-Wallis rank sums was used to test for significant differences between all pairwise combinations of items of the questions. Sample sizes were not always equal for each of the items because of selective item nonresponse by 1 or more respondents. Dunn's (1964) multiple-comparisons procedure for unequal sample sizes on items was not used because it is much more time-consuming than Miller's procedure; sample sizes were large; and, sample sizes were approximately equal. The test statistic would vary only slightly because of unequal sample sizes if Dunn's procedure were used. The average number of responses across items within each question was used as the sample size in Miller's (1966) test statistic equation.

## RESULTS AND DISCUSSION

Complete, or partially complete, questionnaires were returned by 1,468 VW subscribers. Because a comparison of returns by individuals responding to VW follow-up postcards and non-postcard respondents would have been inappropriate, the representativeness of the VW sample could not be documented. Although it was not possible to document the representativeness of the sample, it could be argued that respondents were probably more interested in the content of VW than nonrespondents and this would tend to lessen any negative impact in future selection of articles for VW due to the potential unrepresentativeness of the sample.

Table 1 presents median scores, the rank order of median scores, and the multiple comparisons test for the combined topics' question. Based on the median of the ranks assigned to each topic, hunting stories were judged as the most preferred (median = 1.96), and were followed in decreasing order of preference by fishing articles (median = 3.51), wildlife management articles (median = 4.69), and natural history articles (median = 4.72). Boating articles were least preferred (median = 7.66, rank of median = 10). Only 1.3% of the respondents chose boating articles as being preferable to all other articles. All but 4 of the 45 pairwise comparisons of medians were significantly different at an experimentwise alpha level of 0.20 and individual comparison alpha of 0.0045. Although a single comparison actually involves the difference between the means of the ranks of observations on 2 items, it is more meaningful in this case to discuss the results of nonparametric multiple comparisons tests in terms of the median score.

Table 1. Median scores, rank order of median scores, and multiple comparisons test for combined topics question.<sup>a</sup>

| <i>Topic</i>                | <i>Median Score<sup>b</sup></i> | <i>Rank of Median<sup>c</sup></i> |
|-----------------------------|---------------------------------|-----------------------------------|
| Hunting                     | 1.96 <sup>1</sup>               | 1                                 |
| Fishing                     | 3.51 <sup>2</sup>               | 2                                 |
| Wildlife management         | 4.69 <sup>3</sup>               | 3                                 |
| Natural history             | 4.72 <sup>3</sup>               | 4                                 |
| How to-outdoor equipment    | 5.03 <sup>4</sup>               | 5                                 |
| Hiking-wilderness adventure | 5.11 <sup>4</sup>               | 6                                 |
| Environmental issues        | 6.37 <sup>5</sup>               | 7                                 |
| History-nostalgia           | 6.63 <sup>5+6</sup>             | 8                                 |
| Wildlife arts and crafts    | 7.02 <sup>6</sup>               | 9                                 |
| Boating                     | 7.66 <sup>7</sup>               | 10                                |

<sup>a</sup>Multiple comparisons test based on average sample size of 1,424, experiment-wise alpha level of 0.20, and individual comparison alpha level of 0.0045.

<sup>b</sup>Medians with a different superscript(s) are significantly different ( $P < 0.0045$ ).

<sup>c</sup>Ranks of 1 to 10 represent smallest to largest medians.

The reason for employing statistical tests of differences among and between medians in this paper is related to valid decision-making in terms of selection and publication of articles in conservation magazines. For example, as shown in Table 1, the median scores on the wildlife management and natural history topics are not significantly different (at the alpha level used) and could have occurred by chance. Because the difference between the medians is statistically (and practically) insignificant, an editor would not have a valid basis for inferring the greater preference by subscribers for articles related to wildlife management as compared to natural history articles based on a comparison of medians. However, an additional criterion for determining relative preferences for major article types is presented later.

Median scores were not significantly different ( $P > 0.0045$ ) between the 1) outdoor equipment and hiking-wilderness adventure topics, 2) environmental issues and history-nostalgia topics, and 3) history-nostalgia and wildlife arts-crafts topics.

Medians, ranks, and multiple comparisons test results for types of articles presented with the hunting and fishing topics are presented in Table 2. "How to" articles were most

Table 2. Median scores, rank order of median scores, and multiple comparisons test for hunting and fishing topic.<sup>a</sup>

| <i>Content Type</i>            | <i>Median Score<sup>b</sup></i> | <i>Rank of Median<sup>c</sup></i> |
|--------------------------------|---------------------------------|-----------------------------------|
| How to                         | 2.09 <sup>1</sup>               | 1                                 |
| Where to                       | 2.24 <sup>2</sup>               | 2                                 |
| First person adventure account | 2.76 <sup>3</sup>               | 3                                 |
| Equipment                      | 3.63 <sup>4</sup>               | 4                                 |
| Field dressing and recipes     | 4.23 <sup>5</sup>               | 5                                 |

<sup>a</sup>Multiple comparisons test based on average sample size of 1,335, experimentwise alpha level of 0.10, and individual comparison alpha level of 0.01.

<sup>b</sup>Medians with a different superscript(s) are significantly different ( $P < 0.01$ ).

<sup>c</sup>Ranks of 1 to 5 represent smallest to largest medians.

preferred (median = 2.09), followed by “where to” (median = 2.24), first-person adventure accounts (median = 2.76), equipment articles (median = 3.63), and field dressing and recipes articles (median = 4.23). All pairwise comparisons of median scores were significantly different ( $P < 0.01$ ).

Current programs’ articles were most preferred (median = 1.45) under the wildlife management topic question (Table 3). “How to” articles were preferred second, followed by issues, management statistics, and career information related to wildlife management. Each of the comparisons of medians was significant ( $P < 0.01$ ).

Table 3. Median scores, rank order of median scores, and multiple comparisons test for wildlife management topic.<sup>a</sup>

| <i>Content Type</i>   | <i>Median Score<sup>b</sup></i> | <i>Rank of Median<sup>c</sup></i> |
|-----------------------|---------------------------------|-----------------------------------|
| Current programs      | 1.45 <sup>1</sup>               | 1                                 |
| How to                | 2.70 <sup>2</sup>               | 2                                 |
| Issues                | 2.96 <sup>3</sup>               | 3                                 |
| Management statistics | 3.37 <sup>4</sup>               | 4                                 |
| Career information    | 4.67 <sup>5</sup>               | 5                                 |

<sup>a</sup>Multiple comparison test based on average sample size of 1,348, experiment-wise alpha level of 0.10, and individual comparison alpha level of 0.01.

<sup>b</sup>Medians with a different superscript(s) are significantly different ( $P < 0.01$ ).

<sup>c</sup>Ranks of 1 to 5 represent smallest to largest medians.

Results presented in Table 4 are particularly interesting. Within the environment and political issues topic, articles relating to habitat loss were most preferred (median = 1.69); gun control articles were judged third in preference (median = 2.85); and, energy-related articles were rated last in preference (median = 3.85). There may be an inverse relationship, at least for the article-types of Table 4, between the type of article persons prefer to read and the perceived importance of problems presented in articles. For example, more subscribers would probably think energy-related problems were more serious than habitat loss problems. Because energy-related articles may present information causing more anxiety to readers than habitat-loss articles, readers may more prefer to read the habitat-loss articles. An analogy may be found in results of studies showing that a much

Table 4. Median scores, rank order of median scores, and multiple comparisons test for environmental and political issues topic.<sup>a</sup>

| <i>Content Type</i> | <i>Median Score<sup>b</sup></i> | <i>Rank of Median<sup>c</sup></i> |
|---------------------|---------------------------------|-----------------------------------|
| Habitat loss        | 1.69 <sup>1</sup>               | 1                                 |
| Pollution           | 2.73 <sup>2</sup>               | 2                                 |
| Gun control         | 2.85 <sup>2</sup>               | 3                                 |
| Federal policies    | 3.74 <sup>3</sup>               | 4                                 |
| Energy              | 3.85 <sup>4</sup>               | 5                                 |

<sup>a</sup>Multiple comparisons test based on average sample size of 1,347, experiment-wise alpha level of 0.10, and individual comparison alpha level of 0.01.

<sup>b</sup>Medians with a different superscript are significantly different ( $P < 0.01$ ).

<sup>c</sup>Ranks of 1 to 5 represent smallest to largest medians.

greater percentage of cigarette smokers than non-cigarette smokers do not read advertisements in magazines concerning potential cancer-causing effects of cigarette (tobacco) smoking.

The last question of the survey asked subscribers to check those categories of personal outdoor interest (activity) applicable to them (Table 5). Approximately 78% of

Table 5. Personal outdoor interests of respondents of the readership preference survey.<sup>a</sup>

| <i>Recreation Category</i> | <i>Percent of all persons responding to recreation category</i> |
|----------------------------|---|
| Fishing                    | 77.9  |
| Hunting                    | 77.7  |
| Camping                    | 61.7  |
| Ecology                    | 57.2  |
| Hiking                     | 52.2  |
| Photography                | 47.4  |
| Boating                    | 47.3  |
| Wildflowers                | 43.1  |
| Bird watching              | 42.4  |
| Cooking                    | 41.4  |
| Woodcraft                  | 36.8  |
| Environmental activist     | 31.1  |
| Archery                    | 28.7  |
| Tackle-making              | 20.9  |
| Muzzle-loading             | 19.3  |

<sup>a</sup>Based on responses from 1,468 individuals.

the sample expressed an interest in hunting and fishing. This finding is similar to Wilson's (1972) report that 74% and 80% of respondents to a readership preference survey of *Outdoors in Georgia* subscribers listed hunting and fishing, respectively, as a major recreational activity. Tackle-making and muzzle-loading were least frequently listed as being outdoor interests by subscribers. Unexpectedly, almost one-third of the subscriber sample reported they were "environmental activists." This high percentage may be due partly to varying interpretations of what constitutes being an "environmental activist." Most of us tend to think of an environmental activist as one who joins pro-environment organizations; sends many letters to his/her congressman stressing the importance of attending to environmental problems; organizes and participates in litter clean-up campaigns; and, attends environmental planning workshops. However, many of the respondents may only covertly or verbally support the activities of *other* individuals or organizations engaged in pro-environment activities.

Hunters and fishermen predominate among subscribers to *Virginia Wildlife*. Hunters and fishermen are also represented disproportionately higher as subscribers than in the general population. Approximately 29% and 11% of the U.S. population fished and hunted, respectively, in 1975 (U.S. Fish and Wildlife Service 1977) and 78% of VW subscribers expressed interest in fishing and hunting.

One possible method for making a decision concerning the optimum mix of articles in VW, based only on readership preferences, is suggested by the data of Table 6. Table 6 presents the percentage of respondents checking each major article type of question 9 as being most preferred (rank of 1). Hunting articles were most preferred by 44.5% of the subscribers, fishing articles by 13.1%, natural history articles by 12.4%, and so on. If it was considered desirable to tailor the content of VW to meet the preferences of current

Table 6. Percentage of respondents checking each major topic of question 9 as being most preferred (rank of 1).

| <i>Topic</i>                     | <i>Percentage of respondents checking topic as being most preferred</i> |
|----------------------------------|---|
| Hunting                          | 44.5  |
| Fishing                          | 13.1  |
| Natural history                  | 12.4  |
| Hiking-wilderness adventure      | 7.0   |
| Wildlife management              | 6.9   |
| Outdoor equipment                | 6.4   |
| Environment and political issues | 4.3   |
| Wildlife arts and crafts         | 2.8   |
| History-nostalgia                | 2.7   |
| Boating                          | 1.3   |

subscribers, one method would be to publish articles in proportion to the absolute frequency with which respondents checked major topics as being most preferred. For example, over a 1 year period, 45% of the articles could be related to hunting, 13% to fishing, 12.4% to natural history, and so on.

In summary, based on median responses, hunting stories were most preferred by subscribers, followed in decreasing order of preference by fishing, wildlife management, natural history, outdoor equipment, wilderness adventure, environmental issues, history-nostalgia, wildlife arts and crafts, and boating articles.

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